

As discussed below, applicant respectfully disagrees. First, the newly cited Okuyama et al. publication is not properly cited as prior art against the pending claims. Second, even if it were properly cited as prior art, there would have been no motivation to combine the cited references to obtain the claimed subject matter.

The Okuyama et al. publication is not properly cited as prior art

The publication date of the Okuyama et al. reference is March 28, 2002, which is *after* the U.S. filing date of the pending application (February 22, 2002). Therefore, the Okuyama et al. reference is not prior art under 35 U.S.C. §§ 102(a), 102 (b).

Although the U.S. filing date of the Okuyama et al. application (June 8, 2001) is before the U.S. filing date of the pending application, the pending application claims and is entitled to the foreign priority dates of February 22, 2001 and March 22, 2001. Both those dates are *before* the U.S. filing date of the Okuyama et al. publication. The foreign priority date of the Okuyama et al. application is not relevant for the purposes of that reference's status as prior art. Therefore, the Okuyama et al. reference is not prior art under 35 U.S.C. § 102(e).

In conclusion, the Okuyama et al. publication is not properly cited as prior art against the pending claims. The claims are patentable over the remaining references at least for the reasons discussed in applicant's reply to the previous Office action.

Furthermore, even if the Okuyama et al. publication were properly cited as prior art, the pending claims are patentable at least for the reasons discussed below.

The Law of Obviousness

A claimed invention is unpatentable due to obviousness if the differences between it and the prior art "are such that the subject matter as a whole would have been obvious at the time the invention was made to a person of ordinary skill in the art." 35 U.S.C. § 103(a).

As discussed by the Court of Appeals for the Federal Circuit, a proper conclusion of obviousness under 35 U.S.C. § 103 requires that there be some motivation in the prior art that suggests the claimed invention as a whole:

[A]n Examiner may often find every element of a claimed invention in the prior art. If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue. Furthermore, rejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention. Such an approach would be “an illogical and inappropriate process by which to determine patentability.” [Citations omitted] To prevent the use of hindsight based on the invention to defeat patentability of the invention, this court requires the examiner to show motivation to combine the references that create the case of obviousness.

In re Rouffet, 149 F.3d 1350, 1357; 47 USPQ2d 1453, 1457-1458 (Fed. Cir. 1998). As further explained by the Federal Circuit:

Our case law makes clear that the best defense against hindsight-based obviousness analysis is the rigorous application of the requirement for a showing of a teaching or motivation to combine the prior art references. See Dembiczak, 175 F.3d at 999, 50 USPQ2d at 1617. “Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor’s disclosure as a blueprint for piecing together the prior art to defeat patentability--the essence of hindsight.” Id.

“When a rejection depends on a combination of prior art references, there must be some teaching, suggestion, or motivation to combine the references.” In re Rouffet, 149 F.3d 1350, 1355, 47 USPQ2d 1453, 1456 (Fed. Cir. 1998) (citing In re Geiger, 815 F.2d 686, 688, 2 USPQ2d 1276, 1278 (Fed. Cir. 1987)).

Ecolchem, Inc. v. Southern California Edison Co., 56 USPQ2d 1065, 1072-73 (Fed. Cir. 2000). The showing of the motivation to combine must be “clear and particular.” *See, e.g., C.R. Bard*,

Inc. v. M3 Sys., Inc., 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998); *Teleflex, Inc. v. Ficosa North Am. Corp.*, 63 USPQ2d 1374 at 1387 (Fed. Cir. 2002).

The Claimed Subject Matter is Patentable Over the Cited References

The pending claims relate to illumination optical systems. Independent claim 1 recites that at least one of the linear beam-forming lens system, the lens array section, and the condenser optical system is movable along an optical axis. Similarly, independent claim 7 recites that at least one of the first cylindrical lens and the second cylindrical lens is movable along an optical axis.

In this case, the required “clear and particular” motivation to combine the references cited in the Office action is lacking.

The Muraki et al. patent relates to an illuminating device that includes a fly's eye lens system 13, a condenser lens 14, a lens 16 and a condensing optical system 17 (*see, e.g.*, FIGS. 2 and 9). The disclosed illumination device is suitable for exposure systems, such as semiconductor steppers, that project a pattern of a reticle upon a wafer (*see, e.g.*, col. 1, lines 15-19; col. 2, line 43; col. 4, lines 53-56; col. 12, lines 30-41). Such exposure systems require uniform illumination of the wafer. Therefore, the Muraki et al. patent repeatedly emphasizes the ability of the illumination device to obtain a *uniform* light distribution (*see, e.g.*, col. 12, lines 66-68; *see also* col. 20, lines 35-37; col. 23, lines 37-39; col. 3, lines 58-59).

In contrast, the Okuyama et al. publication relates to an illumination system that can carry out various different illumination states (*i.e.*, light distributions) including centrally concentrated illumination, as well as uniform illumination (page 1, par. 0007). The Okuyama et al. publication discloses various ways in which the illumination distribution can be varied, including by moving a lens array or a light condensing optical element along the optical axis. However, contrary to the statements in the Office action, there would have been no reason to add such

features to the system disclosed in the Muraki et al. patent. The Muraki et al. system has no need for the ability to provide the other types of light distribution (such as centrally concentrated illumination) disclosed in the Okuyama et al. publication. To do so would unnecessarily complicate the Muraki et al. system in which it is desirable to provide uniform light distribution, not other types of light distribution. At least for those reasons, one of ordinary skill in the art would not have been motivated to combine the disclosure of the Okuyama et al. publication with the disclosure of the Muraki et al. patent.

Moreover, contrary to the statements in the Office action, it would not have been obvious to combine the disclosure of the Muraki et al. patent with the movable lens array of the Okuyama et al. patent.

The movable lens array of the Okuyama et al. patent is identified, for example, as the fly-eye lenses 22, 23, 24 in FIGS. 1A and 1B. The fly-eye lenses, which are aligned to one another in a direction parallel to the optical axis, form an integrator (page 3, par. 0050) such that the combined focal lengths of the lenses can be varied by changing the distance between the fly-eye lenses. That allows the light distribution to be switched, for example, between centrally concentrated illumination and uniform illumination (page 3, par. 0044).

The illumination system disclosed in the Muraki et al. patent also includes a fly's eye lens system 13. However, in contrast to Okuyama et al. patent, the fly's eye lens system 13 includes lens elements that are disposed in a plane perpendicular to the optical axis (*see, e.g.*, FIGS. 2 and 9). The function of the lens system 13 is explained, for example, beginning at col. 5, lines 44. As explained there:

The number of the lens elements constituting the fly's eye lens system 13 and the number of the parallel light fluxes are in a one-to-one relation, such that each light flux enters into a corresponding one of the lens elements of the fly's eye lens system 13.

That is very different from the integrator function of the fly's eye lenses 22, 23, 24 disclosed in the Okuyama et al. patent. There would have been no reason to complicate the system of the Muraki et al. patent with the lens system of the Okuyama et al. patent.

For those additional reasons, one of ordinary skill in the art would not have been motivated to combine the references to obtain the claimed subject matter.

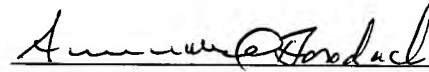
Conclusion

In view of the foregoing remarks, applicant submits that all claims are in condition for allowance, and respectfully requests favorable action.

Please apply any charges or credits to deposit account 06-1050.

Respectfully submitted,

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Samuel Borodach
Reg. No. 38,388

Fish & Richardson P.C.
45 Rockefeller Plaza, Suite 2800
New York, New York 10111
Telephone: (212) 765-5070
Facsimile: (212) 258-2291